

Abstract

An apparatus (10) that utilizes microelectromechanical systems (MEMS) technology to provide an *in vivo* assessment of loads on adjacent bones (24 and 26) comprises a body (34) for insertion between the adjacent bones. At least one sensor (42) is associated with the body (34). The sensor (42) generates an output signal in response to and indicative of a load being applied to the body (34) through the adjacent bones (24 and 26). A telemetric device (40) is operatively coupled with the sensor (42). The telemetric device (40) is operable to receive the output signal from the sensor (42) and to transmit an EMF signal dependent upon the output signal. According to various aspects of the invention, the sensor comprises a pressure sensor (42), a load cell (320), and/or at least one strain gauge (142).